

Life of the Land

LOL-HECO-SIR-1

Ref: LOL-HECO-IR-7.

HECO excluded renewable resources because there is a lack of site, a lack of land, the cost and need for interconnection, etc, etc. In reality, renewables often fit on existing roofs, coexist in multi-use settings, and interconnect to distribution circuits. HECO added that “renewable resource generating plants [are] a nonviable alternative” and thus environmental and economic externalities and the price of oil were not considered since the resource was “non-viable”. Since these resources exist in multiuse settings, they must be viable. Including renewables, what was the answer to our original question?

HECO Response:

The answers to LOL HECO-IR-7 were responsive to the information request, and HECO objects to LOL-HECO-SIR-1 on the grounds that it is argumentative and is not a proper SIR. Without waiving its objection, HECO notes that the actual statement on page 32 of the application, which LOL truncated in the preamble to LOL-HECO-IR-7, was as follows:

In general, the 1995 Alternatives Study, as updated in 2000, found that renewable resource generating plants were not a viable alternative due to the lack of suitable sites, the large land requirements, the non-firm nature of wind and solar resources, and the costs and need for interconnection lines if suitable sites could be found and battery energy storage systems were added to firm up the resources.

Page 32 of the Application referred to the 1995 CH2M Hill Alternatives Study, which was updated in 2000 (and included in the Revised Final EIS). As noted on pages 29-30 of the Application:

The 1995 Alternatives Study, as updated in 2000, reviewed the feasibility and practicality of the installation of generating facilities in the Koolau/Pukele service areas that use renewable resources, the implementation of such large amounts of demand side management and load management measures, and the installation of substantial amounts of distributed generation (“DG”) in the Koolau/Pukele service area to displace the need for a 138kV transmission line connecting the Pukele and Kamoku Substations.

The four transmission concerns included the Koolau/Pukele and Downtown Overload Situations, the Pukele Substation Reliability Concern, and the Downtown Substation Reliability Concern. In general, the analysis concluded that, for reasons related to cost, feasibility, practicality and effectiveness, the transmission line was the preferred alternative. For example, none of the options could resolve the Pukele Substation Reliability Concern, unless the entire load (for approximately 60,000 service accounts) in the Pukele service area could be displaced, or backed up in the event of a loss of the two 138 kV transmission lines currently providing power to the Pukele substation. The analysis indicated why displacing or backing up the Pukele service area load would be infeasible and/or impractical (due to factors such as the lack of available sites), particularly in the near-term, or cost-prohibitive if the siting and other feasibility issues could be resolved.

The 2000 update specifically updated information related to wind energy, solar energy, fuel cells and biomass conversion. (Section 10-A of the Final Revised EIS, pages 10-14.)

“Viability” encompasses more than technical feasibility. For example, photovoltaic (“PV”) systems can be sited on rooftops. The cost to install PV systems was estimated at \$5,000 to \$10,000 per kW depending on the types of installation. The cost to install 200 MW would be \$1 – 2 billion. Also, PV systems do not provide firm capacity without battery energy storage systems. Given the cost, it did not make sense to further review the amount of suitable rooftop space for this potential resource. Other resources (wind energy conversion systems, central solar thermal energy plants, and biomass generating facilities) would have land and permitting issues in this area.

LOL-HECO-SIR-2

Ref: LOL-HECO-IR-9.

HECO stated “HECO does not know what the term ‘real renewable energy producers’ mean. Isn’t it obvious that an environmental group would find it an oxymoron to use an Orwellian definition in which there are renewable fossil fuels. That is, some massively polluting, greenhouse gas emitting, 100% fossil fuel units are renewable under Act 95 (2004). Doesn’t it make sense that the environmental community needs a new word for renewables since the utility has corrupted the old definition?”

HECO Response:

HECO objects to this SIR on the grounds that it is argumentative and is not a proper SIR.

Without waiving its objection, HECO notes that:

As noted in HECO’s response to LOL-HECO-IR-9, it was not clear what LOL meant by the phrase “real renewable energy producers.” Neither LOL-HECO-IR-9, nor HECO’s response to this IR, referred to Act 95 (2004). Nevertheless, HECO tried to be responsive to this information request by noting the renewable energy producers with which HECO and its subsidiaries have signed Power Purchase Agreements.

Act 95, passed in this year’s Legislature, amended Hawaii Revised Statutes 269.91, which among other things defined renewable energy. While Life of the Land may not have agreed with the current definition, the Legislature accepted the definition with the passage of Act 95.

LOL-HECO-SIR-3

Ref: LOL-HECO-IR-16-18.

HECO stated that the agendas for the Executive Committee meetings were discarded after the meeting was over “on the grounds that attorneys were asked to report at the meetings”. Did attorneys helped [sic] to chose [sic] the preferred alternative? Which attorneys attended the meetings? What other parts of the formulation and design of this proposal were done under the cloak of attorney-client privilege?

HECO Response:

Attorneys did not choose the preferred alternative. The formulation and design of the EOTP were not “done under the cloak of attorney-client privilege.” Various attorneys (Jackie Erickson, HECO General Counsel; Leon Roose, HECO Associate General Counsel; and Thomas Williams and Lisa Munger, both of Goodsill, Anderson, Quinn & Stifle, HECO’s outside counsel) participated in the Executive Team meetings to identify legal issues as they arose and provide legal advice. These attorney-client communications are privileged. For an explanation of the decision-making process and criteria, see Testimony of Thomas L. Joaquin (HECO T-1, Docket No. 03-0417), Decision Matrix (HECO-101, Docket No. 03-0417) and HECO Responses to LOL-HECO-IR-16, LOL-HECO-IR-17 and LOL-HECO-IR-18 (Docket No. 03-0417), which are incorporated in this response by reference. HECO also notes that LOL does not quote the entire objection stated in response to LOL-HECO-IR-16, subpart e.

LOL-HECO-SIR-4

Ref: LOL-HECO-IR-59.

For expert witness Stewart, please list three cases where the witness was hired by a utility and found fault with the way the utility was performing some operation. Please choose cases that would demonstrate that witness Stewart is simple [sic] not a hired gun. In the event that the witness never disagreed with a utility in any publicly released document, please state the number of publicly released documents that the witness was in total agreement with utilities that hired him.

HECO Response:

Mr. Stewart is not aware of any pertinent reports on the results of audits/assessments of utility practices that he has authored, co-authored or contributed to being publicly available. Many papers/presentations/articles that he has authored or co-authored are publicly available, however, they do not present the kind of information being sought. In general, EDM's contracts for utility industry clients contain restrictions on public disclosure of information. These restrictions typically take the form of Confidentiality, Non-Disclosure, Trade Secrecy, Ownership of Information, and/or Intellectual Property clauses. Even EDM's reports for the California Independent System Operator (CAISO) (a not-for-profit public benefit corporation), which present information relevant to the issue of transmission system maintenance and which were originally intended to be publicly available, have become subject to confidentiality requirements because of potentially sensitive information that the reports present regarding the maintenance and forced outage performance of the California investor owned utilities' lines that are under the operational control of the CAISO.

Mr. Stewart and his colleagues at EDM are often contracted by utilities to perform independent reviews/audits/assessments of the utilities' inspection, maintenance and operations processes/practices with the goal of identifying opportunities for improvements. Obviously, the very nature of these types of projects implies that the utilities' believe there may be opportunities

for improvement and that EDM will provide an objective assessment. As stated in the response to LOL-HECO-IR-59, occasionally, in conducting this type of work, Mr. Stewart has found some aspect of an overall process being done incorrectly. However, seldom has Mr. Stewart found a systemic/pervasive or significant incorrectness associated with a practice. This is in part due to the conservative and prudent nature of electric utility operations. More often than not, the results of Mr. Stewart's work are recommendations that will help to improve the cost-effectiveness of a process or practice. Descriptions of a couple of recent EDM projects that illustrate the nature of relevant work by Mr. Stewart are provided below.

In a recent project in another jurisdiction, Mr. Stewart led a team that was contracted to review how utilities were calculating and reporting performance data. This project involved auditing utility performance data and reports. One of the findings from this project was that there were inconsistencies in data processing and reporting that should be addressed so that future reports would allow for consistent interpretation of results. Some utilities were found to be deviating from prescribed processes in data processing and reporting and to be inconsistently applying the processes, i.e., historic variation in how the same set of prescribed processes was applied over time was observed. Based on these findings, recommendations were prepared to address these inconsistencies and to require the utilities to document in detail the processes used each time performance data are calculated and reported.

In another recent project in another jurisdiction, Mr. Stewart was part of an EDM team that was contracted by an investor owned utility to review the utility's approach to inspecting and making repair/replacement decisions for components of its overhead lines. This project involved reviewing specifications and conducting an independent inspection of previously inspected components of the client's system, conducting analyses to identify opportunities for

improvement in the utility's repair/replacement decision-making, and preparing documentation to illustrate the potential benefits of implementing the identified opportunities for improvement.

The findings from the project indicated that the utility was utilizing very conservative criteria on the condition of the components as the basis for making maintenance decisions and that economic criteria used to define thresholds for repair versus replacement decisions were not being consistently communicated or applied by different departments or regional operations within the utility. This led to the premature replacement of components that through process improvement could remain in service for an extended period of time while providing continued reliable service. To capitalize on the opportunity to improve the cost-effectiveness of maintenance decisions, EDM recommended changes to inspection and maintenance specifications, addition of a specialized inspection targeted at performing a detailed inspection of the condition of line components before determining whether repair or replacement was warranted, training and certification of inspectors that would be responsible for the specialized inspection, broader utilization of repair technologies in lieu of replacement, and definition and communication of economic criteria to be used as the basis of repair versus replacement decisions. Further analyses showed that a substantial portion of the components currently slated for replacement based on previous inspections could remain in service through implementation of the improvements identified, thereby resulting in the deferral of significant maintenance expenditures.

LOL-HECO-SIR-5

Ref: LOL-HECO-IR-64.

HECO Witness Randall Pollock: “In addition to studying the more probable single contingency outage scenarios, multiple contingencies (outages of more than one system element) must be included in system planning studies, recognizing that while they may have a low probability of occurrence they still can and do happen.” (HECO Testimony T-3, page 12, line 23 through page 13, line 1).

Life of the Land asked for clarification of this is [sic] our Information Request. LOL asked: (a) Does HECO use probability analysis in transmission planning? (b) How do you determine which outage scenarios are ‘more probable’? HECO responded: “the use of the word ‘probable’ in this context refers to the likelihood of an event in a qualitative sense, rather than in a statistically defined mathematical approach [sic]. Thus, the discussion of which outage scenarios might be more or less probable does not require the calculation of a probability of occurrence. The outage (or contingency) scenarios that are more probable, or put another way, those that through industry-wide experience are known to more commonly occur are the ‘more probable’ outage scenarios.”

HECO added in response to LOL-HECO-IR-67: “As compared to the mainland interconnected grid, the Oahu 138kV system is simpler and less complex system. From a planning perspective, the lower level of complexity of the Oahu system means that is straightforward to identify all of the contingency scenarios to be studied. Since all reasonable outage scenarios are required to be studied to determine compliance with the planning criteria, there is no need to calculate the probability of a particular outage scenario.”

When using qualitative rather than rigorous statistical terminology, shouldn’t HECO clearly identify that the use of the term is less robust than [sic] what the reader might read into the HECO statement? What other terms does HECO use in a qualitative sense rather than in a quantitative sense?

HECO Response:

The meanings of the terms (words) in the HECO testimony are either their normal everyday meanings, normal meanings within the context of the testimony, or are explained in the testimony.

Mr. Pollock’s overall testimony (HECO T-3) provides an explanation of the Transmission System Planning Process, the Development and Application of Transmission System Planning Criteria, and a Review of the HECO Transmission Planning Criteria. His

testimony explains the entire process, and specifically that the NERC and HECO transmission planning standards are deterministic, or rule based, and that these various criteria have been developed over time through industry experience. Additionally, the scenarios suggested for study as part of the criteria are also described. (HECO T-3, page 14 - 15). There are no probability-based transmission planning criteria included in the currently approved NERC or HECO transmission planning criteria to address in the transmission system studies. The use of the term “probable,” as used in the transmission planning context, does not refer to a statistical approach to the analysis of various events to be addressed in the conduct of the system planning process. The term “probable” is understood to have its normal meaning¹, as opposed to a statistical connotation related to the calculation of probabilities.

¹ Webster’s New World Dictionary, Third College Edition, 1991, 1988 by Simon & Shuster, Inc.: “*probable* - 1. likely to occur or be; that can reasonably but not certainly be expected [*the probable winner*]. 2. reasonably so, as on the basis of evidence; but not proved [*the probable cause of a disease*].”

LOL-HECO-SIR-6

Ref: LOL-HECO-IR-68.

Is HECO aware of any scientific, peer-reviewed analysis that justifies HECO's statement: "Probability analysis is neither weaker nor stronger than the deterministic method." If deterministic analysis is simpler and largely equivalent, why would anyone conduct rigorous statistical analysis?

HECO Response:

Mr. Pollock's response to LOL-HECO-IR-68 did not state that "deterministic analysis is simpler and largely equivalent," as LOL has supposed in this supplemental information request. Mr. Pollock's response to LOL-HECO-IR-68, subpart b, states, "Probability analysis is neither weaker nor stronger than the deterministic method. Rather, one must use the correct analysis tool for the job at hand." In his response, Mr. Pollock then goes on to explain this in the context of transmission system planning studies.

One must keep the objectives of the transmission system planning process in mind, and this is also addressed in Mr. Pollock's answer: "... one of the objectives of the system planning process is to complete the technical analyses consistent with previously approved transmission planning criteria, such as the HECO or NERC transmission planning criteria." There are no probability based transmission planning criteria included in the currently approved NERC or HECO transmission planning criteria to address in the transmission system studies. Therefore, a deterministic approach is the most appropriate to use to assess compliance with a deterministic set of criteria.